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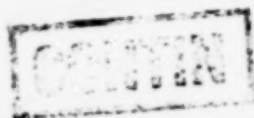
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National Aeronautics
and Space Administration

December 27, 1995

NRA 95-OSS-18



Research Announcement

Space Ultraviolet/Visible Detector Development Program

Appendices A - D

Letters of Intent Due: February 5, 1996

Proposals Due: March 27, 1996

Ja 0830-H-05

96-017977

NASA RESEARCH ANNOUNCEMENT

SPACE ULTRAVIOLET/VISIBLE DETECTOR DEVELOPMENT PROGRAM

LIST OF APPENDICES

Appendices :

- A. Program Description
- B. Instructions for Responding to NASA Research Announcements
- C. Additional Guidelines Regarding Proposal Submission, Evaluation, Selection, and Implementation for This NRA
- D. Cover Pages, Budget Forms, and Institutional Certifications

SPACE ULTRAVIOLET/VISIBLE DETECTOR DEVELOPMENT PROGRAM

I. PROGRAM DESCRIPTION

The purpose of the Space Ultraviolet/Visible Detector Development Program (SUVDDP) for Astrophysics is to provide for the orderly development of detectors needed for future space ultraviolet (UV) and visible astronomy missions. The SUVDDP involves development of detectors for space astronomy applications in the spectral range 100 to 7000 Angstroms, which encompasses the extreme ultraviolet, ultraviolet, and visible wavelength regions.

The primary goal of the SUVDDP is research into and the development of detectors representing the best possible state-of-the-art detector technology for instruments that may be proposed as candidate experiments in response to future announcements of space flight opportunities. Potential future astrophysics missions include instruments which might be flown on the Space Shuttle, Space Station, Small Explorer (SMEX) missions, Medium-class Explorer (MIDEX) missions, follow-on Hubble Space Telescope instruments, and future space interferometers.

The intent of the SUVDDP is not to develop flight qualified hardware for specific instruments, but rather to understand the fundamental operational aspects of detectors and to develop them to the point where they can be proposed as part of an instrument for future announcements of flight opportunity. Potential future space applications may include two-dimensional UV spectroscopy (e.g. echelle format) and high resolution UV and visible spatial imaging over both small and large fields of view.

Considering currently available technology for UV/visible detectors (e.g. CCD's and microchannel plate detectors), the greatest emphasis of SUVDDP will be toward the development of space ultraviolet and visible detectors which address the technological problems associated with achieving some of the following desirable detector attributes:

- (1) high UV quantum efficiency (e.g. achieved by new photocathodes or by antireflection coating/backside passivation)
- (2) large array format (>2000 x 2000 pixels)

- (3) high spatial resolution ($< 10\mu\text{m}$ resolution FWHM)
- (4) large dynamic range (both locally and globally on the detector)
- (5) high speed, high resolution read-out techniques
- (6) hardness to the effects of space radiation

Since the environment and constraints of space flight are far stricter than those for ground-based applications, research groups considering development of space detectors must be cognizant of the following characteristics which are highly desirable in reliable, space-quality detection systems:

- (1) low mass
- (2) low sensitivity to particle radiation ("radiation hardness")
- (3) low power consumption
- (4) compactness
- (5) ability to operate in an "open face" mode for sensitivity at wavelengths shorter than 1100 \AA .
- (6) designed for operation in a vacuum (such that high voltage arcing is minimized)
- (7) vibration tolerance

New measurement concepts may be proposed, as well as methods to improve the performance of existing detectors. Research into the basic properties of UV and visible detector systems that could be considered for use in space is also strongly encouraged. It is not, however, the purpose of the SUVDDP to support development of detectors which are primarily suitable for ground-based astronomy. Although ground-based observing with newly developed UV/visible detectors may be necessary to verify the total detection system, this should not be the main thrust of a space detector development effort.

Proposers are asked to identify potential mechanisms which could facilitate transfer of these detector technologies to other users, including the private sector, for possible application beyond the immediate one of meeting mission science objectives.

The total funding currently available for this program is approximately \$1.1M and is expected to be modestly augmented beginning in fiscal year 1997. There are no restrictions on the level of funding which may be requested for an investigation under this program. At present, the program supports ten investigations.

II. PROGRAM DURATION AND PROPOSAL SCHEDULE

The Space Ultraviolet/Visible Detector Development Program is a continuing program. Current plans call for an issuance of this NRA at least once every 3 years; however, proposers may specify shorter periods of performance if the full 3-year period is not required to complete the program. Proposers are encouraged, but not required, to define a program which may be accomplished within a 3-year period. It is recognized that the proposed investigation may evolve with time. Emphasis should be placed on describing the first year's effort and include as much detail as possible regarding planned second and third year activities. Similarly, a detailed budget supporting the first-year's work is required, together with a reliable estimate for succeeding years. For proposals requesting support beyond 3 years, key projected activities occurring after the initial 3-year interval should be identified. Since NASA can commit financial support only on a 1-year basis, brief renewal proposals summarizing progress and plans for the forthcoming funding period will be required annually. Programs that extend beyond 3 years will be subject to full competitive review at the end of the 3-year period.

Proposals are due March 27, 1996. To facilitate planning for the peer review process, individuals who intend to submit proposals in response to this solicitation should submit a Letter of Intent by February 5, 1996 (see Appendix C for more details).

The schedule for planned activities for the review cycle for this NRA is as follows:

Letters of Intent due	February 5, 1996
Last date for receipt of proposals for 1996 review	March 27, 1996
Target date for Peer Review	May 1996
Target date for Notification of PI	September 1996
Initiation of Funding	January 1997

III. PROGRAM MANAGEMENT INFORMATION

The SUVDDP is managed by the Office of Space Science, National Aeronautics and Space Administration, Washington, DC 20546. Questions regarding proposal format, evaluation procedures, or requests for further general information regarding the SUVDDP should be referred to:

Dr. Hashima Hasan
Office of Space Science
Code SZ
NASA Headquarters
Washington, DC 20546-0001
Phone: (202) 358-0377
e-mail: hhasan@hq.nasa.gov

IV. EDUCATION AND PUBLIC OUTREACH

"Partners in Education: A Strategy for Integrating Education and Public Outreach Into NASA's Space Science Programs" (released in March 1995) describes the Office of Space Science's approach for making both education at all levels and the enhancement of public understanding of science integral parts of space science research activities. Education and public outreach are now expected to be a part of each flight program and research discipline. This policy will be implemented through a mixture of mission/project-specific outreach activities, plus education/outreach activities conducted by individual researchers/guest observers who wish to do so. NASA strongly encourages those researchers who have relevant expertise or inclination to engage in education and public outreach. Therefore, interested proposers may include a modest program of educational/public outreach activities as part of their research proposals.

We also call your attention to the Initiative to Develop Education through Astronomy (IDEA) program. The IDEA program - which is now administered by the Space Telescope Science Institute - specifically provides small grants (typically \$6000) to enhance the participation of research astronomers in precollege or public outreach activities. The next IDEA announcement is expected to be released by the Space Telescope Science Institute in September 1996.

For more information on OSS and Astrophysics education policies and programs, contact Dr. Jeffrey D. Rosendhal, Office of Space Science, NASA Headquarters, Washington, DC 20546-0001. For more information on the IDEA program, contact

Dr. Anne Kinney, Project Scientist for Education, Space Telescope Science Institute,
3700 San Martin Drive, Baltimore, MD 21218.

INSTRUCTIONS FOR RESPONDING TO NASA RESEARCH ANNOUNCEMENTS FOR SOLICITED RESEARCH PROPOSALS

(AUGUST 1988)

1. FOREWORD

a. NASA depends upon industry, educational institutions, and other nonprofit organizations for most of its research efforts. While a number of mechanisms have been developed over the years to inform the research community of those areas in which NASA has special research interests, these instructions apply only to "NASA Research Announcements," a form of "broad agency announcements" described in 6.102(d)(2) and 35.016 of the Federal Acquisition Regulation (FAR). The "NASA Research Announcement (NRA)" permits competitive selection of research projects in accordance with statute while at the same time preserving the traditional concepts and understanding associated with NASA sponsorship of research.

b. These instructions are Appendix I to 18-70.203 of the NASA Federal Acquisition Regulation Supplement.

2. POLICY

a. NASA fosters and encourages the submission of research proposals relevant to Agency mission requirements by solicitations, NRA's, which describe research areas of interests to NASA. Proposals received in response to an NRA will be used only for evaluation purposes.

b. NASA does not allow a proposal, the contents of which are not available without restriction from another source, or any unique ideas submitted in response to an NRA to be used as the basis of a solicitation or in negotiation with other organizations, nor is a preaward synopsis published for individual proposals.

c. A solicited proposal that results in a NASA award becomes part of the record of that transaction and may be available to the public on specific requests; however, information or materials that NASA and the awardees mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law, including the Freedom of Information Act.

3. PURPOSE

These instructions are intended to supplement documents identified as NRA's. The NRA's contain programmatic information and certain "NRA-specific" requirements

which apply only to proposals prepared in response to that particular announcement. These instructions contain the general proposal preparation information which applied to responses to all NRA's.

4. RELATIONSHIP TO AWARD

a. A contract, grant, cooperative agreement, or other agreement may be used to accomplish an effort funded on the basis of a proposal submitted in response to an NRA.

NASA does not have separate "grant proposal" and "contract proposal" categories, so all proposals may be prepared in a similar fashion. NASA will determine the appropriate instrument.

b. Grants are generally used to fund basic research in educational and nonprofit institutions, while research in other private sector organizations is accomplished under contract. Additional information peculiar to the contractual process (certifications, cost and pricing data, facilities information, etc.) will be requested, as necessary, as the procurement progresses. Contracts resulting from NRA's are subject to the FAR and the NASA FAR Supplement (NHB 5100.4). Any resultant grants or cooperative agreements will be awarded and administered in accordance with the NASA Grant and Cooperative Agreement Handbook (NHB 5800.1).

5. CONFORMANCE TO GUIDANCE

a. NASA does not have any mandatory forms or formats for preparation of responses to NRA's; however, it is requested that proposals conform to the procedural and submission guidelines covered in these instructions. In particular, NASA may accept proposals without discussion; hence, proposals should initially be as complete as possible and be submitted on the proposers' most favorable terms.

b. In order to be considered responsive to the solicitation, a submission must, at a minimum, present a specific project within the areas delineated by the NRA; contain sufficient technical and cost information to permit a meaningful evaluation; be signed by an official authorized to legally bind the submitting organization; not merely offer to perform standard services or to just provide computer facilities or services; and not significantly duplicate a more specific current or pending NASA solicitation. NASA reserves the right to reject any or all proposals received in response to an NRA when such action is considered in the best interest of the Government.

6. NRA-SPECIFIC ITEMS

a. Several proposal submission items will appear in the NRA itself. These include: the unique NRA identifier; when to submit proposals; where to send proposals; number of copies required; and sources for more information.

b. Items included in these instructions may be supplemented by the NRA, as circumstances warrant. Examples are: technical points for specific emphasis; additional evaluation factors; and proposal length.

7. PROPOSAL CONTENTS

a. The following general information is needed in all proposals in order to permit consideration in an objective manner. NRA's will generally specify topics for which additional information or greater detail is desirable. Each proposal copy shall contain all submitted material, including a copy of the transmittal letter if it contains substantive information.

b. Transmittal Letter or Prefatory Material

- (1) The legal name and address of the organization and specific division or campus identification if part of a larger organization;
- (2) A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press;
- (3) Type of organization: e.g., profit, nonprofit, educational, small business, minority, women-owned, etc.;
- (4) Name and telephone number of the principal investigator and business personnel who may be contacted during evaluation or negotiation;
- (5) Identification of any other organizations that are currently evaluating a proposal for the same efforts;
- (6) Identification of the specific NRA, by number and title, to which the proposal is responding;
- (7) Dollar amount requested of NASA, desired starting date, and duration of project;
- (8) Date of submission; and
- (9) Signature of a responsible official or authorized representative of the organization, or any other person authorized to legally bind the organization (unless the signature appears on the proposal itself).

c. Restriction on Use and Disclosure of Proposal Information

It is NASA policy to use information contained in proposals for evaluation purposes only. While this policy does not require that the proposal bear a restrictive notice, offerors or quoters should, in order to maximize protection of trade secrets or other information that is commercial or financial and confidential or privileged, place the

following notice on the title page of the proposal and specify the information subject to the notice by inserting appropriate identification, such as page numbers, in the notice. In any event, information (data) contained in proposals will be protected to the extent permitted by law, but NASA assumes no liability for use and disclosure of information not made subject to the notice.

NOTICE

Restriction on Use and Disclosure of Proposal Information

The information (data) contained in [insert page numbers or other identification] of this proposal constitutes a trade secret and/or information that is commercial or financial and confidential or privileged. It is furnished to the Government in confidence with the understanding that it will not, without permission of the offeror, be used or disclosed other than for evaluation purposes; provided, however, that in the event a contract (or other agreement) is awarded on the basis of this proposal the Government shall have the right to use and disclose this information (data) to the extent provided in the contract (or other agreement). This restriction does not limit the Government's right to use or disclose this information (data) if obtained from another source without restriction.

d. Abstract

Include a concise (200-300 word if not otherwise specified in the NRA) abstract describing the objective of the proposed effort and the method of approach.

e. Project Description

(1) The main body of the proposal shall be a detailed statement of the work to be undertaken and should include objectives and expected significance; relation to the present state of knowledge in the field; and relation to previous work done on the project and to related work in progress elsewhere. The statement should outline the general plan of work, including the broad design of experiments to be undertaken and an adequate description of experimental methods and procedures. The project description should be prepared in a manner that addresses the evaluation factors in these instructions and any additional specific factors in the NRA. Any substantial collaboration with individuals not referred to in the budget or use of consultants should be described. Note, however, that subcontracting significant portions of a research project is discouraged.

(2) When it is expected that the effort will require more than 1 year for completion, the proposal should cover the complete project to the extent that it can be reasonably anticipated. Principal emphasis should, of course, be on the first year of work, and the description should distinguish clearly between the first year's work and work planned for subsequent years.

f. Management Approach

For large or complex efforts involving interactions among numerous individuals or other organizations, plans for distribution of responsibilities and any necessary arrangements for ensuring a coordinated effort should be described. Aspects of any required intensive working relation with NASA Field Centers that are not logical inclusions elsewhere in the proposal should be described in this section.

g. Personnel

The principal investigator is responsible for direct supervision of the work and participates in the conduct of the research regardless of whether or not compensation is received under the award. A short biographical sketch of the principal investigator, a list of principal publications, and any exceptional qualifications should be included. Omit social security number and other personal items which do not merit consideration in evaluation of the proposal. Give similar biographical information on other senior professional personnel who will be directly associated with the project. Give the name and titles of any other scientists and technical personnel associated substantially with the project in an advisory capacity. Universities should list the approximate number of students or other assistants, together with information as to their level of academic attainment. Any special industry-university cooperative arrangements should be described.

h. Facilities and Equipment

(1) Describe available facilities and major items of equipment especially adapted or suited to the proposed project and any additional major equipment that will be required. Identify any Government-owned facilities, industrial plant equipment, or special tooling that are proposed for use on the project.

(2) Before requesting a major item of capital equipment, the proposer should determine if sharing or loan of equipment already within the organization is a feasible alternative to purchase. Where such arrangements cannot be made, the proposal should so state. The need for items that typically can be used for both research and non-research purposes should be explained.

i. Proposed Costs

(1) Proposals should contain cost and technical parts in one volume: do not use separate "confidential" salary pages. As applicable, include separate cost estimates for salaries and wages; fringe benefits; equipment; expendable materials and supplies; services; domestic and foreign travel; ADP expenses; publication or page charges; consultants; subcontractors; other miscellaneous identifiable direct costs; and indirect costs. List salaries and wages in appropriate organizational categories (e.g., principal investigator, other scientific and engineering professionals, graduate students, research

assistants, and technicians and other non-professional personnel). Estimate all manpower data in terms of man-months or fractions of full time.

(2) Explanatory notes should accompany the cost proposal to provide identification and estimated cost of major capital equipment items to be acquired; purpose and estimated number and lengths of trips planned; basis for indirect cost computation (including date of most recent negotiation and cognizant agency); and clarification of other items in the cost proposal that are not self-evident. List estimated expenses as yearly requirements by major work phases (Standard Form 1411 may be used).

(3) Allowable costs are governed by FAR Part 31 and the NASA FAR Supplement Part 18-31 (and OMB Circulars A-21 for educational institutions and A-122 for nonprofit organizations).

j. Security

Proposals should not contain security classified material. However, if the proposed research requires access to or may generate security classified information, the submitter will be required to comply with applicable Government security regulations.

k. Current Support

For other current projects being conducted by the principal investigator, provide title of project, sponsoring agency, and ending date.

l. Special Matters

(1) Include any required statements of environmental impact of the research, human subject or animal care provisions, conflict of interest, or on such other topics as may be required by the nature of the effort and current statutes, executive orders, or other current Government-wide guidelines.

(2) Proposers should include a brief description of the organization, its facilities, and previous work experience in the field of the proposal. Identify the cognizant Government audit agency, inspection agency, and administrative contracting officer, when applicable.

8. RENEWAL PROPOSALS

a. Renewal proposals for existing awards will be considered in the same manner as proposals for new endeavors. It is not necessary that renewal proposals repeat all of the information that was in the original proposal upon which the current support was based. The renewal proposal should refer to its predecessor, update the parts that are no longer current, and indicate what elements of the research are expected to be covered during the period for which extended support is desired. A description of any significant findings since the most recent progress report should be included. The

renewal proposals should treat, in reasonable detail, the plans for the next period, contain a cost estimate, and otherwise adhere to these instructions.

b. NASA reserves the right to renew an effort either through amendment of an existing contractor or by a new award.

9. LENGTH

Unless otherwise specified in the NRA, every effort should be made to keep proposals as brief as possible, concentrating on substantive material essential for a complete understanding of the project. Experience shows that few proposals need exceed 15-20 pages. Any necessary detailed information, such as reprints, should be included as attachments rather than in the main body of the proposal. A complete set of attachments is necessary for each copy of the proposal. As proposals are not returned, avoid use of "one-of-a-kind" attachments. Their availability may be mentioned in the proposal.

10. JOINT PROPOSALS

a. Some projects involve joint efforts among individuals in different organizations or mutual efforts of more than one organization. Where multiple organizations are involved, the proposal may be submitted by only one of them. In this event, it should clearly describe the role to be played by the other organizations and indicate the legal and managerial arrangements contemplated. In other instances, simultaneous submission of related proposals from each organization might be appropriate, in which case parallel awards would be made.

b. Where a project of a cooperative nature with NASA is contemplated, the proposal should describe the contributions expected from any participating NASA investigator and Agency facilities or equipment which may be required. However, the proposal must be confined only to that which the proposing organization can commit itself. "Joint" proposals which purport to specify the internal arrangements NASA will actually make are not acceptable as a means of establishing an Agency commitment.

11. LATE PROPOSALS

A proposal or modification thereto received after the date or dates specified in an NRA may still be considered if the selecting official deems it to offer NASA a significant technical advantage or cost reduction.

12. WITHDRAWAL

Proposals may be withdrawn by the proposer at any time. Offerors are requested to notify NASA if the proposal is funded by another organization or other changed circumstances which dictate termination of evaluation.

13. EVALUATION FACTORS

- a. Unless otherwise specified in the NRA, the principal elements (of approximately equal weight) considered in evaluating a proposal are its relevance to NASA's objectives, intrinsic merit, and cost.
- b. Evaluation of a proposal's relevance to NASA's objectives includes the consideration of the potential contribution of the effort to NASA's mission.
- c. Evaluation of its intrinsic merit includes the consideration of the following factors, none of which is more important than any other:
 - (1) Overall scientific or technical merit of the proposal or unique and innovative methods, approaches, or concepts demonstrated by the proposal;
 - (2) The offeror's capabilities, related experience, facilities, techniques, or unique contributions of these which are integral factors for achieving the proposal objectives;
 - (3) The qualifications, capabilities, and experience of the proposed principal investigator, team leader, or key personnel who are critical in achieving the proposals objectives;
 - (4) Overall standing among similar proposals available for evaluation and/or evaluation against the known state of the art.
- d. Evaluation of the cost of a proposed effort includes the consideration of the realism and reasonableness of the proposed cost and the relationship of the proposed cost to available funds.

14. EVALUATION TECHNIQUES

Selection decisions will be made following peer and/or scientific review of the proposals. Several evaluation techniques are regularly used within NASA. In all cases, however, proposals are subject to scientific review by discipline specialists in the area of the proposal. Some proposals are reviewed entirely in-house where NASA has particular competence; others are evaluated by a combination of in-house people and selected external reviewers, while yet others are subject to the full external peer review technique (with due regard for conflict-of-interest and protection of proposal information), such as by mail or through assembled panels. Regardless of the technique, the final decisions are always made by a designated NASA selecting official. A proposal which is scientifically and programmatically meritorious, but which is not selected for award during its initial review under the NRA, may be included in subsequent reviews unless the proposer requests otherwise.

15. SELECTION FOR AWARD

- a. When a proposal is not selected for award and the proposer has indicated that the proposal is not to be held over for subsequent reviews, the proposer will be notified that

the proposal was not selected for award. NASA will notify the proposer and explain generally why the proposal was not selected. Proposers desiring additional information may contact the selecting official who will arrange a debriefing.

b. When a proposal is selected for award, negotiation and award will be handled by the procurement office in the funding installation. The proposal is used as the basis for negotiation with the submitter. Formal RFP's are not used to obtain additional information on a proposal selected under the NRA process. However, the contracting officer may request certain business data and may forward a model contract and other information which will be of use during the contract negotiation.

16. CANCELLATION OF NRA

NASA reserves the right to make no awards under this NRA and, in the absence of program funding or for any other reason, to cancel this NRA by having a notice published in the Commerce Business Daily. NASA assumes no liability for canceling the NRA or for anyone's failure to receive actual notice of cancellation. Cancellation may be followed by issuance and synopsis of a revised NRA, since amendment of an NRA is normally not permitted.

**ADDITIONAL INFORMATION REGARDING PROPOSAL SUBMISSION,
EVALUATION, SELECTION, AND IMPLEMENTATION**

The information contained in Appendix C augments/supersedes Appendix B and is applicable only to NRA 95-OSS-18.

I. PROPOSAL PREPARATION AND SUBMISSION

A. Letter of Intent to Propose

To facilitate planning for the proposal evaluation process and the timely selection of a scientific peer review panel, investigators intending to submit proposals for participation in this program should notify NASA by February 5, 1996. A one-page letter of intent containing the name and affiliation of the Principal Investigator and all Co-Investigators should be sent either by paper hardcopy or electronically to:

Dr. Hashima Hasan
Office of Space Science
Code SZ
National Aeronautics and Space Administration
Washington, DC 20546-0001.
email: hhasan@hq.nasa.gov

The letter should summarize the primary research areas and objectives of the proposed investigation.

B. Proposal Format

The proposal must have both a Cover Page and a General Form following the formats in Appendix D of this NRA. When completing these forms, please note that for proposals in response to NRA's, NASA recognizes only **one** Principal Investigator (PI) for each proposal. Other investigators are designated Co-Investigators (Co-I's) even if their proposal and science responsibilities are comparable to those of the PI.

All proposals must be endorsed by the proposer's sponsoring institution. The General Form contains space for this endorsement. If substantial collaborations with other institutions are involved, letters of endorsement should be submitted by the responsible officials from those institutions. Each endorsement letter should indicate agreement with the nature of the collaboration detailed in the proposal, which should be identified by title and date of submission. All endorsement letters should refer to the Space Ultraviolet/Visible Detector Development Program and include the NRA number for this program.

In addition to the Cover Page and General Form, proposals should contain a table of contents, a summary of the proposed scientific program, a scientific/technical section, a management/work schedule, a budget section, a statement of current and pending Federal support, and biographical sketches. The budget section is not required for proposals originating outside of the United States.

C. Page Limit

Proposals are expected to be concisely written in order to minimize the burden on the reviewers and to facilitate the overall evaluation process. The total length of the science and technical section of the proposal, including figures, tables, and list of references, **should not exceed 15** single-spaced, typewritten sides (point size 10 or larger with 1-inch margins). NASA reserves the right not to review proposals that exceed the page limit. Such proposals will be returned to the P.I. without being reviewed. Double-sided copying is encouraged. The number of pages containing the work schedule, budget, current and pending Federal support, biographical sketches, etc., should be 10 pages or less. The enclosure of preprints or reprints is not allowed – where appropriate, work should be summarized or referenced in the body of the proposal.

D. Guidelines for the Scientific/Technical Section

The scientific/technical section should contain a one-page summary, followed by a description of the scientific objectives of the proposed investigation(s) and how these are to be achieved. The section should contain a description of the proposed detector and its potential scientific use adequate to enable a peer review committee to evaluate the proposal against the evaluation criteria stated in Section II below.

A brief management plan for the proposed effort should also be included. This should contain milestones in the research effort and list key personnel associated with the detector development program. Student participation in this program of research is

strongly recommended (see "Evaluation Criteria") and brief details of the educational goals and training of such personnel should be included. It should also be noted that the goals of such student training should be set so as to be achievable within the normal duration of a graduate student traineeship.

E. Guidelines for the Budget Section

The budget section of the proposal should include a fiscal breakdown for each year of the proposed work, not to exceed 3 years. This budget should be presented in the Yearly Budget Forms enclosed in Appendix D of this NRA. The budget breakdown will be used by the Government to evaluate the proposed costs and their reasonableness. The total budget amount for the period of proposed research, and for the first year, should also appear on the General Form.

To facilitate multiyear budgeting, cost plans, where practical, should be "front-loaded" such that years 2 and 3 are approximately equal to the first year's request plus an allowance for inflation (this is not a requirement, but it may not be possible to accommodate large increases in years subsequent to the first).

The proposed costing information should be sufficiently detailed to allow the Government to identify costed elements for evaluation purposes. Each budget category should be explained. Offerors should exercise prudent judgment regarding the amount of detail necessary depending upon the complexity of the proposal. Where applicable, the cost section should include a breakdown by year and a total for all periods. While it is not mandatory that cost proposals conform exactly to these guidelines, information supplied at the level of detail provided on the Budget sheet in Appendix D will expedite the processing of the grant awards for selected proposals.

If collaborations with Co-I's (or subcontractors) at institutions different from that of the PI are involved, the total budget (if any) of each participating institution should be provided under category *F.4 Subgrants/Contracts* in the Proposal Budget Form of the PI.

As indicated in the Proposal Budget Form, direct labor costs should be segregated by titles or disciplines (e.g., PI, Co-I) with estimated hourly or monthly rates, number of months, and total dollar amounts for each.

Costs associated with instrumentation should be detailed under category *D. Equipment* in the Proposal Budget Form of the PI. Costs for calibration and testing should be included under category *F.5 Other* and should be itemized accordingly. Data analysis

and any other costs should also be included under category *F.5 Other*. With regard to other costs, each significant category should be detailed, explained, and substantiated in the proposal. For example, proposals for equipment purchases should specify the type of equipment, number of units, and unit cost. Requested travel allowances should include the destination, number of travelers, number of days, and the total cost per trip. Publication costs in peer-reviewed journals should also be included.

F. Current and Pending Federal Support

Following the budget section, the proposal **must** contain, for the PI and each Co-I for whom support is being requested, a summary of current and pending Federal support of **all** projects in which she or he is substantially involved. The required information must include: funding agency, grant/contract number, project title, award amount for FY 1997 and the total award amount, award period, and level of effort (percent).

G. Biographical Sketches

A brief biographical sketch along with a list of relevant scientific publications covering the past 5 years should be included. The biographical sketch and publications list should not exceed one page per PI or Co-I.

H. Proposal Submission Information

Fifteen (15) copies of each proposal must be **received** at the following address no later than 4:30 P.M. EST on March 27, 1996:

UV/Visible Detector Program
Code SZ-1
Suite 700
400 Virginia Avenue, SW
Washington, DC 20024
Phone: (202) 554-4923 or (202) 554-2775

I. Foreign Investigations

Non-U.S. proposers should not include a cost plan. Non-U.S. proposals and U.S. proposals which include non-U.S. participation must be endorsed by the respective government agency or funding/sponsoring institution in that country from which the non-U.S. participant is proposing. Such endorsement should indicate:

1. The proposal merits careful consideration by NASA; and

2. If the proposal is selected, sufficient funds will be made available to undertake the activity proposed.

One copy of each proposal and the letters of endorsement should be forwarded to the NASA International Relations Division. These documents should be sent to:

Ms. Shiron Gaines
International Relations Division
Code IR
NRA 95-OSS-18
NASA Headquarters
Washington, DC 20546-0001 USA

The required number of copies of the proposal (15) are to be forwarded to :

UV/Visible Detector Program
Code SZ-1
Suite 700
400 Virginia Avenue, SW
Washington, DC 20024
Phone: (202) 554-4923 or (202) 554-2775

All proposals must be typewritten in English. All non-U.S. proposals will undergo the same evaluation and selection process as those originating in the U.S. Non-U.S. proposals and U.S. proposals which include foreign participation must follow all other guidelines and requirements described in this NRA.

All proposals must be received before the established closing date; those received after the closing date will be treated in accordance with NASA's provisions for late proposals. Sponsoring non-U.S. agencies may, in exceptional situations, forward a proposal without endorsement to the above address if review and endorsement is not possible before the announced closing date. In such cases, however, NASA's International Relations Division should be advised when a decision on endorsement can be expected.

Successful and unsuccessful proposers will be contacted directly by the NASA Program Office coordinating the NRA. Copies of these letters will be sent to the sponsoring agency.

Should a non-U.S. proposal or a U.S. proposal with non-U.S. participation be selected, the NASA International Relations Division will arrange with the non-U.S. sponsoring agency for the proposed participation on a no-exchange-of-funds basis, in which NASA and the non-U.S. sponsoring agency will each bear the cost of discharging its respective responsibilities. Depending on the nature and extent of the proposed cooperation, these arrangements may entail:

1. A letter of notification by NASA; and/or
2. An exchange of letters between NASA and the sponsoring governmental agency.

II. PROPOSAL SELECTION

A. Evaluation and Selection Procedures

The scientific and technical merits of proposals will be evaluated by a scientific peer review panel which will make recommendations to NASA. The proposals and peer panel recommendations will then be considered by the Chief, Ultraviolet, Visible, and Gravitational Astrophysics Branch, in the context of the overall funding availability and programmatic needs. Final selection will be made by the Director, Astrophysics Division, Office of Space Science.

B. Evaluation Criteria

The following specific evaluation criteria are listed in descending order of importance and will be used in evaluating proposals for investigations within this program. Proposals will be graded in each category by the peer review panels. Explicitly addressing each category in proposals will aid their evaluation.

(NOTE: These criteria supersede those cited in Appendix B.)

- 1a. The overall scientific and technical merits of the proposed investigation, **and**
- 1b. The extent to which the newly developed technology has particular relevance to the aims and goals of NASA's Ultraviolet, Visible, and Gravitational Astrophysics program.

2. The technical feasibility and probability of success in accomplishing the stated scientific goals within the duration of the project (e.g., the suitability of the proposed technical approach or technique).
3. The competence and relevant experience of the Principal Investigator and team as an indication of their ability to carry the investigation to a successful conclusion within the requested resources. This includes the timely publication of peer-reviewed journal articles. Past performance of the investigator's relevant work conducted under previous NASA Astrophysics Division grants, if applicable, will be considered.
4. Whether the budget is realistic and reasonable for the proposed research.
5. Potential for successful technology transfer to secondary applications, including commercial applications, in other areas.
6. The degree to which the proposed work contributes to the education and training of younger scientists, especially instrumentalists, in the field of space ultraviolet /visible astronomy and gravitational astrophysics.

These criteria will be followed by the review panel and provide guidance to the proposer. Based on all the criteria, peer review panels will arrive at a consensus evaluation and an overall score based on the content of the proposal.

NASA may desire to select only a portion of a proposer's investigation, in which case, the investigator will be given the opportunity to accept or decline such partial acceptance.

C. Implementation

Individuals responding to this Announcement will be notified of the outcome of the proposal selection process by the Chief, Ultraviolet, Visible, and Gravitational Astrophysics Branch. It is currently expected that official notifications of acceptance or rejection will be made in September 1996, at which time, in the case of those investigations recommended for selection, discussions of the specific terms under which the investigation is to be implemented will be initiated.

COVER PAGE
Space Ultraviolet/Visible Detector Development Program

NRA 95-OSS-18

PRINCIPAL INVESTIGATOR			
<i>Title</i>	<i>First Name</i>	<i>Middle Name</i>	<i>Last Name</i>
PROPOSAL TITLE			
INSTITUTION			
DEPARTMENT			
STREET ADDRESS		CITY/TOWN	
STATE/COUNTY		ZIP/POSTAL CODE	COUNTRY
TELEPHONE		FAX	E-MAIL ADDRESS

ABSTRACT (800 CHARACTERS MAXIMUM INCLUDING SPACES, ~ 150 WORDS)

GENERAL FORM
Space Ultraviolet/Visible Detector Development Program

NRA 95-OSS-18

PRINCIPAL INVESTIGATOR

Title

First Name

Middle Name

Last Name

PROPOSAL TITLE

CO-INVESTIGATOR(S) NAME

INSTITUTION

INSTITUTIONAL ENDORSEMENT

Name of Official

ADMINISTRATIVE AUTHORITY

INSTITUTION

SIGNATURE

DATE

BUDGET SUMMARY:

YEAR 1

YEAR 2

YEAR 3

TOTAL AMOUNT REQUESTED:

84

UV/VISIBLE DETECTOR DEVELOPMENT PROGRAM

FY 19

NRA 95-OSS-18

Principal Investigator		Institution	
A. Salaries of Senior Personnel at PI Institution	Monthly or Hourly Rate	No. of Months	Funds
1. PI			\$
2. Co-I			
3. Co-I			
4. Co-I			
Other (TOTAL FROM SHEET 2)			
B. Salaries or Wages, Other Personnel (show numbers in parentheses)			
1. () Post Doctoral Associates			
2. () Other Professionals (Technicians, Programmers, etc.)			
3. () Graduate Students			
4. () Undergraduate Students			
5. () Clerical			
6. () Other (TOTAL FROM SHEET 2)			
TOTAL SALARIES			
C. Fringe Benefits (if charged as direct costs; specify)	% Rate	Base	
TOTAL FROM SHEET 2			
TOTAL FRINGE			
SUB-TOTAL: Salaries, Wages & Fringe Benefits (A+B+C)			\$
D. EQUIPMENT (itemize here and Sheet 2)			
TOTAL FROM SHEET 2			
SUB-TOTAL: Equipment Cost			\$
E. Total Travel: Domestic (inc. Canada, U.S. Possessions)		TOTAL FROM SHEET 2	
Total Travel, Foreign		TOTAL FROM SHEET 2	
SUB-TOTAL: All Travel			\$
F. Other Direct Cost (Itemize on Sheet 2)			
1. Materials and Supplies			
2. Publication Costs (rate/page x no. of pages)			
3. Institutional Computer Services (rate/hr)			
4. Subgrants/Contracts with Co-I's at other institutions (itemize on Sheet 2)			
5. Other (specify)			
SUB-TOTAL: Other Direct Cost			\$
G. TOTAL - All Direct Cost (A through F)			\$
H. Indirect Cost (specify) Itemize on Sheet 2			
TOTAL INDIRECT			\$
I. TOTAL FY REQUEST (G+H)			
TOTAL REQUEST			\$
Cognizant Institutional Officer (Name & Signature)			

25

BUDGET FORM (Sheet 2)

For Itemization of Categories A-H for FY 19

HRA 95-055-1B

[illegible]

TRANSFER TOTALS TO MAIN BUDGET FORM FOR FY 19_____

**Certification Regarding Drug-Free Workplace Requirements
Grantees Other Than Individuals**

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1988, 34 CFR Part 85, Subpart F. The regulations, published in the January 31, 1989 Federal Register, require certification by grantees, prior to award, that they will maintain a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award the grant. False certification or violation of the certification shall be grounds for suspension of payments, suspension or termination of grants, or government wide suspension or debarment (see 34 CFR Part 85, Sections 85.615 and 85.620).

This grantee certifies that it will provide a drug-free workplace by:

(a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(b) Establishing a drug-free awareness program to inform employees about -

- (1) The dangers of drug abuse in the workplace;
- (2) The grantee's policy of maintaining a drug-free workplace;
- (3) Any available drug counseling, rehabilitation, and employee assistance programs; and
- (4) The penalties that may be imposed upon employees for drug abuse violations in the workplace;

(c) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

(d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will -

- (1) Abide by the terms of the statement; and
- (2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction;

(e) Notifying the agency within ten days after receiving notice under subparagraph (d)(2) from an employee or otherwise receiving actual notice of such conviction;

(f) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d)(2), with respect to any employee who is so convicted -

- (1) Taking appropriate personnel action against such an employee, up to and including termination; or
- (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency;

(g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraph (a), (b), (c), (e), and (f).

Organization Name

PR/Award Number or Proposal Name

Name and Title of Authorized Representative

Signature

Date

**Certification Regarding
Debarment, Suspension, and Other Responsibility Matters
Primary Covered Transactions**

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participant's responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211).

- (1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:
- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
 - (b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
 - (d) Have not within three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.
- (2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Organization Name

PR/Award Number or Proposal Name

Name and Title of Authorized Representative

Signature

Date

Certification Regarding Lobbying

Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000 for each such failure.

Organization Name

PR/Award Number or Proposal Name

Name and Title of Authorized Representative

Signature and Date

NASA Research Announcement (NRA)/Announcement of Opportunity (AO) Mailing List Update

If your current address is NOT up-to-date, please fill out this form completely.

This is the update form for the NASA Office of Space Sciences (OSS) NRA/AO mailing list. Please fill out CONTACT INFORMATION completely. Check only those that apply in Institution Type and Discipline. Fold the form, secure with tape, and mail it back to the address on the reverse side. Proper postage must be applied.

Please check which announcements you would like to receive:

- ☐ 1. NASA Research Announcements (basic, non-flight, on-going research)
- ☐ 2. Announcements of Opportunity (specific space flight mission)

Must check one, please include code number from mailing label:

- ☐ 1. Please **add** my name to the mailing list.
- ☐ 2. Please **remove** my name from the mailing list (please attach mailing label)
- ☐ 3. Please **update** my current listing.

CONTACT INFORMATION

If your address has changed or your mailing label is incorrect, please provide **COMPLETE** contact information.

Code Number: (obtain from mailing label)	<input type="text"/>	Salutation: (Mr., Mrs., Ms., Dr., Prof., etc.)	<input type="text"/>	Suffix (Ret., PhD., Jr., III, etc.)	<input type="text"/>
First Name:	<input type="text"/>	MI:	<input type="text"/>	Last Name:	<input type="text"/>
Organization:	<input type="text"/>				
Division / Department:	<input type="text"/>				
Street:	<input type="text"/>				
City:	<input type="text"/>	State:	<input type="text"/>	Zip:	<input type="text"/>
Telephone No:	<input type="text"/>	Fax No:	<input type="text"/>		
E-Mail Address:	<input type="text"/>		Internet Address:	<input type="text"/>	
Country: (foreign addresses, please specify)	<input type="text"/>				

Institution Type

(check only those that apply)

- | | | |
|--|---|---|
| <input type="checkbox"/> 1. College or University | <input type="checkbox"/> 4. Minority Business | <input type="checkbox"/> 7. Other Government Agency |
| <input type="checkbox"/> 2. Minority College or University | <input type="checkbox"/> 5. NASA HQs/Center | <input type="checkbox"/> 8. Private Industry |
| <input type="checkbox"/> 3. Foreign Addressee | <input type="checkbox"/> 6. Nonprofit Corporation | <input type="checkbox"/> 9. Small Business |

Societies:

- ☐ A. American Astronomical Society
- ☐ B. American Geophysical Union
- ☐ C. Others

Discipline:

(check only those that apply)

1. Astronomy and Astrophysics

- ☐ A. Theory and Modeling
- ☐ B. Instrumentation (Technology Dev)
- ☐ C. Laboratory Astrophysics
- ☐ D. Data Analysis (Archival)
- ☐ E. Observational Programs

2. Solar System Exploration

- ☐ A. Planetary Atmospheres and Astronomy
- ☐ B. Planetary Materials and Geochemistry
- ☐ C. Planetary Geology and Geophysics
- ☐ D. Instrument Development
- ☐ E. Origins of Solar Systems
- ☐ F. Exobiology

3. Space Physics

- ☐ A. Cosmic and Heliosphere Physics
- ☐ B. Solar Physics
- ☐ C. Magnetospheric Physics
- ☐ D. Iono-Thermo-Mesospheric Physics

4. Information Systems/Computer Science

- ☐ A. High Performance Computing and Networking
- ☐ B. Scientific Data Analysis and Visualization
- ☐ C. Science Data Storage and Management
- ☐ D. Software Technology

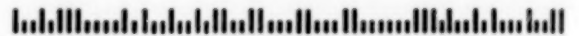
30

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